

Two New Spongicolous Amphipods (Crustacea) From California¹

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TWO NEW SPECIES of gammaridean Amphipoda, described herein, were collected from spiculated horny sponges in Newport Bay, California. One of these species is of special interest for it probably derives its nourishment from the sponge tissues while the other may be only a facultative inhabitant of spongozooids. Arndt (1933) may be consulted for an interesting discussion and review of other amphipods inhabiting sponges, most of which take refuge in spongozooids for protection and easy access to minute food particles other than the host's tissues.

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Family *LEUCOTHOIDAE*

Leucothoides pacifica, new species

Figs. 1, 2*e*, *b*, *n*

DESCRIPTION OF MALE: Head with a short, blunt rostrum, lateral lobes broadly rounded, lower anterior corner rounded; eyes large, composed of a few large facets.

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Antenna 1 longer than 2, articles of peduncle successively slightly shorter, flagellum slightly shorter than peduncle, with 10 articles; accessory flagellum minute, biarticulate.

Antenna 2 with article 5 of peduncle shorter than 4, flagellum with 4 articles, shorter than article 5 of peduncle.

Mandible with 10 spines in spine row, palp with one article bearing 2 terminal setae; molar absent.

Maxilla 1 with 7 spines on outer plate and 3 on distal end of palp article 2. Maxilla 2 sparsely setose.

Inner plates of maxilliped coalesced at base only, not reaching to base of outer plates, each distal edge armed with 3 spinules; outer plates conical, short, each armed with 2 spines.

Gnathopod 1 complexly chelate, coxa produced narrowly in front, articles 5 and 6 with the adjoining edges minutely serrated; posterior edge of article 6 with several short, widely spaced spinules; distal end of process of article 5 with a long, blunt spine; article 7 minute, curved.

Gnathopod 2 with article 5 four fifths as long as 6, greatly produced and setose behind, article 6 not expanded distally, palm slightly oblique, convex, serrated irregularly, defined by 3 spines; article 7 stout, strongly curved, nearly as long as palm.

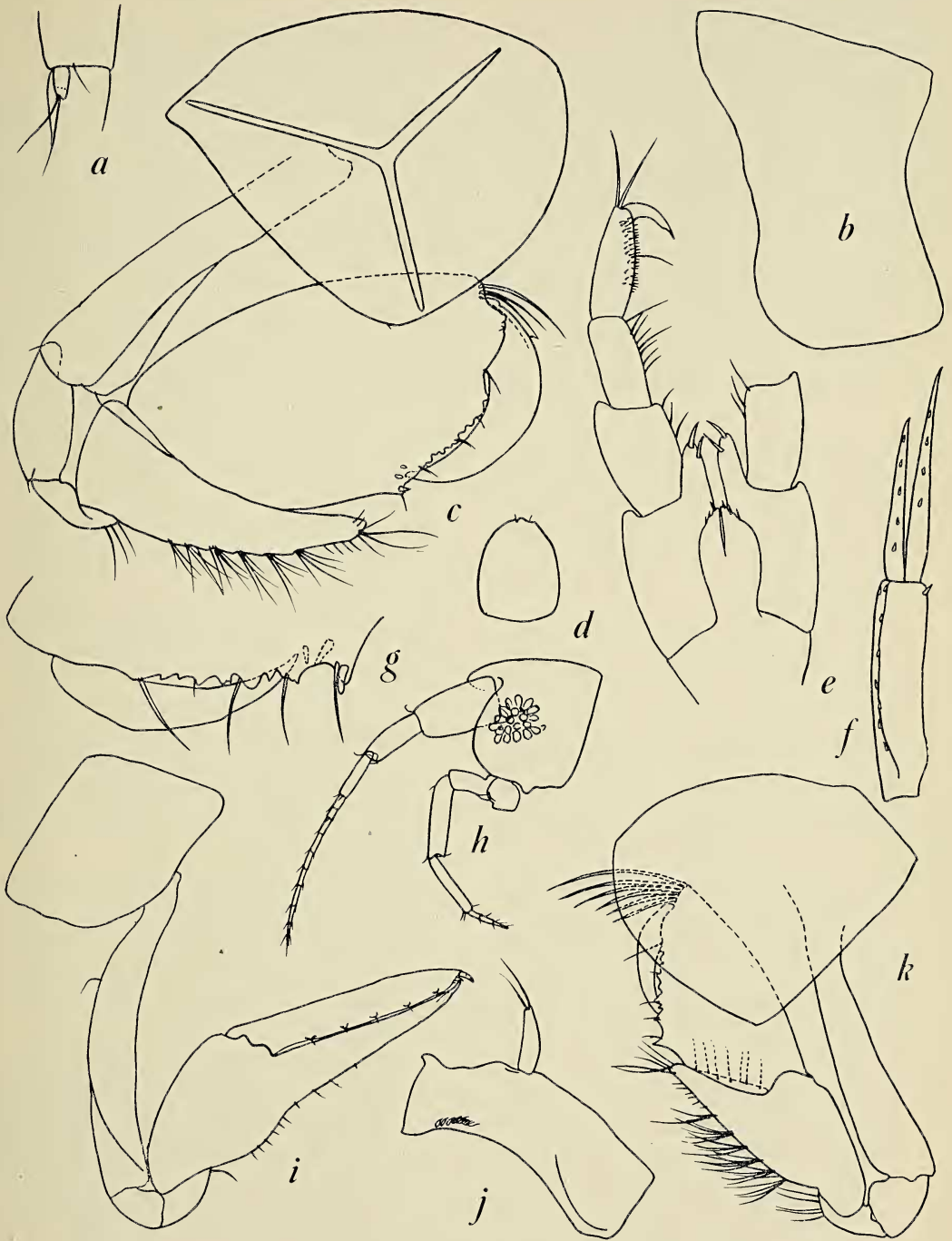


FIG. 1. *Leucothoides pacifica*, n. sp. Male, 4 mm.: *a*, accessory flagellum; *b*, pleon segment 3, left; *c*, gnathopod 2; *d*, telson; *e*, maxilliped; *f*, uropod 1; *g*, gnathopod 2, palm; *h*, head; *i*, gnathopod 1; *j*, mandible. Female, 4 mm.; *k*, gnathopod 2.

Peraeopods 1 and 2 equal in size. Peraeopods 3 to 5 successively slightly longer, second articles broadly expanded.

Uropods with outer rami shorter than inner, inner rami not longer than peduncles; uropod 1 longest, uropod 2 shortest. Telson similar to *Leucothoides pottsii* Shoemaker (1933).

Pleon segment 3 with posteroventral corner of epimera rounded.

FEMALE: Process of article 5 on gnathopod 2 relatively shorter than in male, palm very oblique, serrated, article 7 not stout.

HOLOTYPE: AHF No. 516, male 4 mm. in length.

TYPE LOCALITY: Ellis Boat Landing, Newport Harbor, California (on the south side of United States Highway 101A bridge crossing the channel leading to upper Newport Bay), July 27, 1951, collected by Dr. John L. Mohr, 13 specimens examined.

MATERIAL EXAMINED: Ellis Boat Landing, November 29, 1953, formalin washings of sponges, coll. R. H. Linsley, 20 specimens; dock of Fun Zone Boat Co., Palm Avenue at Bay Front Street, Newport Beach (on bay side), November 29, 1953, formalin washings of sponges, coll. R. H. Linsley, 26 specimens.

REMARKS: This species differs from *Leucothoides pottsii* Shoemaker (1933) from Tortugas, Florida, by: (1) the convex palm of the male second gnathopod; (2) the stout seventh article of the male second gnathopod; (3) the rounded lower anterior corner of the head; (4) the long peduncle of uropod 1.

The figure of the male second gnathopod shows one of the sponge spicules drawn to the same scale and superimposed on the coxal plate. This particular spicule was removed along with others from the "brood pouch" region of the male. This type of calcareous spicule indicates that some of the specimens obtained by formalin washings were from the smaller calcareous sponges present in some samples.

Family ANAMIXIDAE

Anamixis linsleyi, new species

Fig. 2*a-d*, *f-m*, *o-w*

DESCRIPTION OF MALE: Head fused with first peraeon segment so that each is not freely movable, but lines of articulation not obscured; rostrum blunt; eyes large, composed of few facets; lateral lobes not produced; front of head between antennae bears a low but sharp carina.

Antenna 1 longer and stouter than 2, as long as head and first 3 peraeon segments; accessory flagellum minute, barrel-shaped, armed with 2 setae; articles of peduncle successively shorter, primary flagellum not as long as peduncle, composed of 9 to 11 articles.

Antenna 2 with article 5 shorter than 4, flagellum shorter than article 5 of peduncle, composed of 4 to 5 articles.

Mouth parts degenerated: on the underside of the head is a single, thin, pointed lamella, possibly representing the fused mandibles. Maxillae 1 and 2 obsolete.

Maxilliped with inner plates fused and short, in some larger specimens (5 mm.) completely obsolete; outer plates obsolete; article 5 of palp slender, curved, armed on inner edge with short hairs.

Gnathopod 1 complexly chelate, small, the coxal plate produced forward conically and partially concealed by the large second coxa; inner edge of article 6 serrulate, article 7 small, spinuliform; chela of article 5 retruse and blunt at apex.

Gnathopod 2 complexly chelate, article 5 produced forward into a conical appendage nearly as long as article 6; palm not distinct from hind margin, armed with several cusps, the distal one the longest; article 7 closing on process of article 5, inner edge with 3 cusps, the distal one armed with 2 spinules.

Peraeopods as figured.

Uropods 1 and 2 with inner rami longer than outer, both armed on upper edges with spinules. Uropod 3, rami subequal in size.



FIG. 2. *Anamixis linsleyi*, n. sp. Male, 4mm.: a, gnathopod 2; b, end, maxilliped palp; c, end, gnathopod 1; d, head; e, Coxa 4; f, maxilliped, inner plates; g, finger, gnathopod 1; h, peraeopod 1; i, peraeopod 5; j-l, uropods 1-3; m, o, p, peraeopods 2, 1, 3; q, telson; r, gnathopod 1; s, peraeopod 4; t, pleon segments 1-3; u, head, ventral; v, maxilliped; w, coxa 3. *Leucothoides pacifica*, n. sp. e, Coxa 4; b, peraeopod 1; n, peraeopod 3.

Telson simple, linguiform, apex rounded, armed with several groups of setules.

Pleon segment 3 with posterior edge of epimera straight, posteroventral corner quadrate.

FEMALE: Two specimens possibly carrying 2 to 3 shrunken embryos each were dissected. No brood plates were evident and no sexual differences were observed.

HOLOTYPE: AHF No. 531, male 5 mm. in length.

TYPE LOCALITY: Ellis Boat Landing, Newport Harbor, California (on the south side of United States Highway 101A bridge crossing the channel leading to upper Newport Bay), November 29, 1953, from a formalin washing of sponges attached to floating dock, collected by R. H. Linsley, 7 specimens examined.

MATERIAL EXAMINED: Ellis Boat Landing, July 27, 1951, coll. Dr. John L. Mohr, 1 specimen; dock of Fun Zone Boat Co., Palm Avenue at Bay Front Street, Newport Beach (on bay side) November 29, 1953, formalin washings of sponges, coll. R. H. Linsley, 2 specimens.

REMARKS: This species differs from *Anamixis hanseni* Stebbing (1897), described from the West Indies, by the stouter sixth article of gnathopod 2 and a different configuration of the palmar teeth. The coxa of gnathopod 2 is narrower (as measured from front to back) and article 7 is more slender than in *A. hanseni*. The apex of article 5 of gnathopod 1 is blunt and not tipped with a spine as in Stebbing's species.

A. linsleyi differs from *Anamixis stebbingi* Walker (1904), described from Ceylon, by the shape of the second coxa, by the presence of cusps on the palm of gnathopod 2, and by the lack of diverging ridges on the second article of pereopod 5.

The writer agrees with Stebbing (1897) that the structure of gnathopod 1 is homologous to that found in the genus *Leucothoe*; Walker (1904) stated that article 4 (the third article under his system of numbering) was obsolete. His species of *Anamixis* lacked the spine-like finger on article 6, thus leading to his statements:

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